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## Swimming Anatomy

Stephen J. Langendorfer

Bowling Green State University, [slangen@bgsu.edu](mailto:slangen@bgsu.edu)

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## MEDIA REVIEW

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### *Swimming Anatomy*

by Ian A. McLeod. Copyrighted in 2010 by Ian A. McLeod and published by Human Kinetics. 193 pages, paperback; \$21.95. ISBN-10: 0-7360-7571-2

*Reviewed by Stephen J. Langendorfer, PhD, Bowling Green State University.*

I admit to being an “anatomy geek” which is why I find *Swimming Anatomy* to be an interesting new publication from Human Kinetics. My first paid employment in higher education was serving as a laboratory assistant at SUNY Cortland in the Biology Department under Drs. Horak and Spence in the anatomy and physiology course required for all physical education majors. Three years earlier as a sophomore I had taken the same course and apparently had acquitted myself well enough that, following graduation, I was hired as an apprentice for two semesters to lead several laboratory sections.

While I was an undergraduate student as well as a lab assistant, I wish I had had a text like *Swimming Anatomy*. Whenever I sought practical examples of how various muscle groups were used during exercise, I almost always drew upon swimming examples because of my own passion for the sport. Of course, I shudder to wonder whether I was remotely close in many of my anatomical analyses. On second thought, maybe it is a good thing that McLeod’s book didn’t exist at the time so no one would be able to know how good or bad my anatomical examples were!

The author of *Swimming Anatomy*, Ian McLeod, a certified athletic trainer and massage therapist, was highly recommended as an author to Human Kinetics by USA Swimming because of his extensive experience with the U.S.O.C. and USA Swimming organizations. He has been honored for his professional and volunteer contributions to swimmers and swimming as an athletic trainer and as a sports massage therapist. Ian has provided sports massage for a number of national level and Olympic swimmers. If anyone should know muscular anatomy inside and out, it is an athletic trainer and massage therapist.

Clearly oriented toward the sport of competitive swimming, *Swimming Anatomy* is primarily organized according to a traditional anatomical approach around the major parts of the human body (i.e., arms, shoulders, chest, abdomen, back, legs, and whole body). For each anatomical structural grouping, the author reviews the major muscle groups associated with that area of the body including their origin and insertion points as well as primary actions. To an “anatomy geek” such as myself, this is interesting; to a typical coach or swimmer, I am guessing it will be either confusing or boring. Following the overview of the muscle groups, the author provides a series of conditioning exercises aimed at strengthening those particular muscle groups or improving muscular endurance in the related body part. The description of each exercise (according to the promotion materials, 74 exercises total) follows a similar template: the exercise is named, a colored line drawing with the involved muscles highlighted is presented, the execution of

the exercise is described in numbered steps, the involved muscles are bulleted, the “swimming focus” describes how the specific exercise applies in swimming, and, as appropriate, any variations to the main exercise are identified. In addition, small colored icons identify which of the four competitive strokes and starts or turns may apply.

Frankly, I am a bit surprised that the author chose to use a traditional structural anatomical organization for the text. While more challenging to organize because of overlap and redundancies, I suspect the typical swimmer or coach would benefit more from a functional approach. In other words, a butterfly swimmer would be more interested in all those exercises that could improve the butterfly stroke. I do realize that the purpose of the icons is to allow a swimmer to skim through and note all those exercises that may apply to a specific stroke or to a start or turn. This still means that the reader has to do a lot of work. In fact, even the “Exercise Finder” guide that is becoming the hallmark of Human Kinetics texts is organized structurally. A more user-friendly approach either to the whole book or at least to the Exercise Finder might have considered ways to employ a functional approach to conditioning exercises.

Having criticized *Swimming Anatomy* for its traditional anatomical organization, I do need to laud two particularly nice elements. The first is Chapter 1, “The swimmer in motion,” pages 1-9, which introduces the text and does in fact employ a functional approach that I suspect many coaches and swimmers will find to be interesting and useful in understanding the scope and approaches used by the book. Its major components are sections describing the primary movements of the freestyle, butterfly, backstroke, and breaststroke with some reference to the role of major muscle groups in each stroke. The final two sections describe important principles for implementing dryland training programs for swimmers and, importantly, dryland training programs for young swimmers. The section on training young swimmers identifies that if employed appropriately, muscular strength and endurance training can be integrated safely into age group swimming programs. It concludes with Table 1.1 that describes “age-related resistance-training considerations” that is drawn from Kraemer and Fleck (2005), *Strength training for young athletes*.

The second “highlight” of *Swimming Anatomy* jumps out at even the casual reader: the several hundred color-highlighted anatomical line drawings used to illustrate each conditioning exercise as well as to identify how those same muscle groups are used during a swimming stroke. I think that coaches and swimmers who are not trained in muscular anatomy will still find the drawings to be particularly beneficial. One need not know (or even care about) the origins and insertions of muscles or their primary or secondary actions to quickly identify how a muscle group is used in both an exercise and a stroke through these clear drawings.

Although I have suggested that a functional organization to *Swimming Anatomy* (or at least to the Exercise Finder feature) would have been more user-friendly than the more typical structural approach employed, I still find this text to serve a useful place in one’s aquatic library. As the case study article (Colado & Garcia-Masso, 2010) appearing in this same issue (4:1) of the *International Journal of Aquatic Research and Education* indicates, in-water stroke swimming is simply not sufficient to maintain or improve muscular strength and endurance.

Any competitive or fitness swimming program therefore must consider employing additional conditioning exercises, mainly of the dryland variety, in order to enhance their swimmers' muscular strength and endurance. Because of this basic fact, the 74 exercises detailed in *Swimming Anatomy* may play a critical role in a balanced swim training program.

## Reference

- Colado, J., & Garcia-Masso, X. (2010). Muscular activity of the posterior deltoid during swimming vs. resistance exercises in water and on dry land: A case study. *International Journal of Aquatic Research and Education*, 4(1), 61-69.